

Appln. No. 09/599,036

Docket No. 22-0134

REMARKS

Claims 1-11, 13-22 and 24-27 were submitted for reconsideration and reexamination. In the aforementioned Office action, claims 1-11, 13-22, 24 and 25 were rejected and the rejection was made final. Applicant notes with appreciation the allowance of claims 26 and 27.

Claims 1-8 and 13-16 were rejected under 35 U.S.C. §102(e) as allegedly unpatentable over Takahashi et al. (US 6,275,518). Claims 9-11 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Takahashi. Claims 17-22, 24 and 25 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Takahashi in view of Martin et al. (US 6,061,562).

It is Applicant's view that the Takahashi patent is not pertinent to the present invention, but that Applicant's claims, until now, did not make this distinction perfectly clear. The Examiner correctly points out that Takahashi teaches a method for providing a variable hop cycle beam laydown. What this characterization of Takahashi omits to say is that Takahashi is concerned with a frequency hopping scheme wherein the frequency of a transmitted beam is changed on a continuing basis with time. (See, for example, the title, the abstract, FIGS. 2A, 2B, 5A, 5B, 6A, 6B, 7A, 10A, 10B and 13, column 3, lines 50-64, elsewhere throughout the specification, and in all of the claims.) The Examiner contends that Takahashi inherently teaches the steps of Applicant's invention as defined in claims 1 and 7. Since the claims originally and repeatedly recited a "hop cycle," it is conceivable that these claims could in some way be read on a system that solely discloses a frequency hopping scheme.

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By this amendment, Applicant has revised claim 1, for example, to recite more clearly that the invention claimed is a method for providing a variable beam hop cycle beam laydown. The present invention has to do with sharing the inherent bandwidth of a single downlink beam among multiple cells. In other words the concept of a beam hop cycle is that it defines a duty cycle whereby a single beam is time-shared between or among multiple cells or "hop locations." This concept is clarified in claim 1, which now recites, "wherein each beam hop cycle defines how the downlink energy of one beam is time-shared between at least two cells."

As now more clearly recited in the amended claims, the distinction between a frequency hopping scheme, as in Takahashi, and the beam hopping scheme of the present invention has been clarified, and claims 1-8 and 13-16 are believed to be allowable over Takahashi. In addition to amending claim 7 similarly to claim 1, Applicant has also amended a number of the dependent claims for consistency with the amended independent claims and, in some cases, to remove ambiguity. In particular, the term "hop cycle" is amended to "beam hop cycle" throughout, to avoid possible confusion with a frequency hopping scheme.

Regarding claims 2 and 8, the Examiner refers to column 3, lines 50-64, to allege that Takahashi discloses transmitting downlink beam energy for a first hop pair, a second hop pair and a transition hop pair. The cited passage in Takahashi makes no sense at all in the context of a beam hopping scheme, but with the amendatory language now included in independent claims 1 and 7, there is believed to be no question but that Takahashi does not disclose or suggest transmitting downlink energy to beam-hopped pairs of cells.

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Regarding claims 3 and 6, the Examiner contends that Takahashi also teaches transmitting power gated downlink frames, in column 5, lines 14-18. The cited text mentions a "hopping instruction frame" and contains numerous references to frequency hopping, but appears to contain no suggestion at all concerning power gated frames. In any event, these claims are also believed to be patentable with the claim from which they depend.

Regarding claims 4 and 13, the Examiner correctly notes that Takahashi contains a reference to using at least a first frequency, but once again the cited textual material relates to frequency hopping, not beam hopping. In contrast, a disclosed embodiment of the present invention uses the same frequency in all cells. (See Figure 7.)

Regarding claim 5, the Examiner contends that, because Takahashi teaches "frequency hopping in different cells," he inherently teaches transmitting second downlink beam energy according to a second (beam) hop cycle." Although this contention was debatable prior to this amendment, now that the claims more clearly define a beam hopping scheme this ground of rejection is no longer tenable.

Regarding the Examiner's comments concerning claims 14-16, these claims are believed to be allowable with the claim from which they depend.

Claims 9-11 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Takahashi. The Examiner's principal contention was that "Takahashi teaches the variable hop cycle of claim 7" and that the choice of particular hop cycle ratios would have been obvious. Again, Applicant believes that claim 7 as amended more clearly distinguishes the beam hopping scheme of the present invention from the frequency

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hopping scheme of Takahashi. Further, the specific choices of a 50-50, 75-25 or 50-25 hop cycle make absolutely no sense in the context of frequency hopping, but only in the context of a beam hopping scheme in which a beam is time-shared between cells. Accordingly, this ground of rejection is believed to be improperly applied to claims 9-11 as now amended.

Claims 17-22, 24 and 25 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Takahashi in view of Martin. In discussing Takahashi in the context of this rejection, the Examiner contends that the referenced patent inherently discloses hopping between cells, citing the abstract. As discussed above, Takahashi clearly teaches a frequency hopping scheme. The fact that different hopping schemes may be applied to adjacent cells in order to minimize interference does not make this a beam hopping scheme. It is still very clearly a frequency hopping scheme.

The Examiner further notes in this rejection that Takahashi does not teach a switch directing the downlink beam between feed paths, and cites Martin to show such a switch. Applicant concedes that Martin discloses a switch for determining the direction of propagation from or to an antenna array. The existence of such a switch, however, does not overcome the deficiencies of Takahashi as a pertinent reference. Accordingly, it would not have been obvious at the time the invention was made to combine the teachings of Takahashi and Martin, because neither of them teaches or suggests a beam hopping system as defined by the rejected claims. Accordingly, claims 17-22, 24 and 25 are also believed to be allowable over the cited art.

In view of the foregoing remarks, Applicant respectfully requests entry of this amendment under the provisions of 37 C.F.R. 1.116, because the amendment is

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believed to place the entire application in condition for allowance, or at least in better condition for appeal. Applicant regrets having to amend the claims at this stage of the prosecution. The amendment and the presentation of the foregoing arguments were necessitated, in part, by a change in counsel handling the application. Applicant respectfully urges the position that entry of this amendment will expedite prosecution of the application. Accordingly, reconsideration and withdrawal of the final rejection of claims 1-11, 13-22, 24 and 25 are respectfully requested.

Respectfully submitted,

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